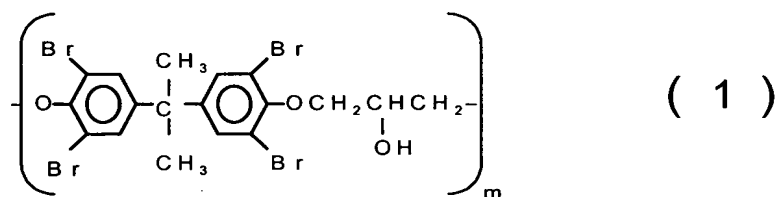


# CLAIMS

1. A flame retardant polyester fiber for artificial hair, formed from 100 parts by weight of (A) a polyester  
5 made of one or more of polyalkylene terephthalate or copolymer polyester comprising polyalkylene terephthalate as a main component, and 5 to 30 parts by weight of (B) a brominated epoxy flame retardant.

2. The flame retardant polyester fiber for artificial  
10 hair according to claim 1, wherein the component (B) is (B1) a brominated epoxy flame retardant having a number

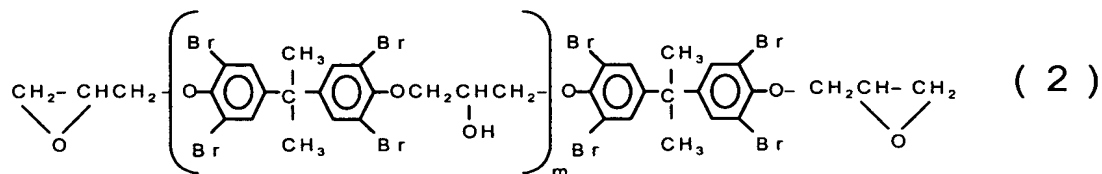


average molecular weight of 20,000 or more represented by the following general formula (1), and the fiber surface has minute projections.

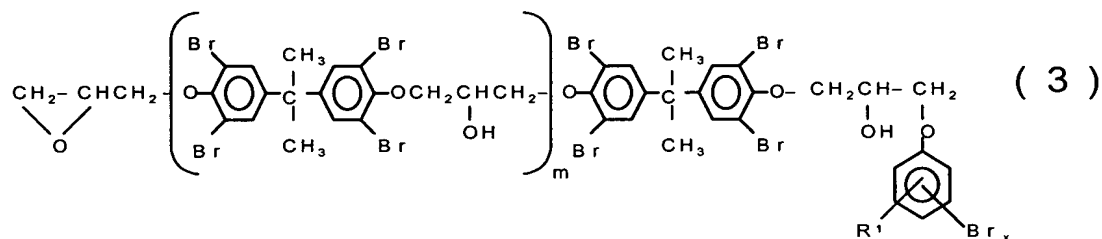
3. The flame retardant polyester fiber for artificial  
15 hair according to claim 1, wherein the component (A) is a polyester made of at least one polymer selected from the group consisting of polyethylene terephthalate, polypropylene terephthalate, and polybutylene  
20 terephthalate.

4. The flame retardant polyester fiber for artificial hair according to claim 1 or 3, wherein the component (B) is at least one flame retardant selected from the group

consisting of brominated epoxy flame retardants represented by the general formulas (2) to (4):

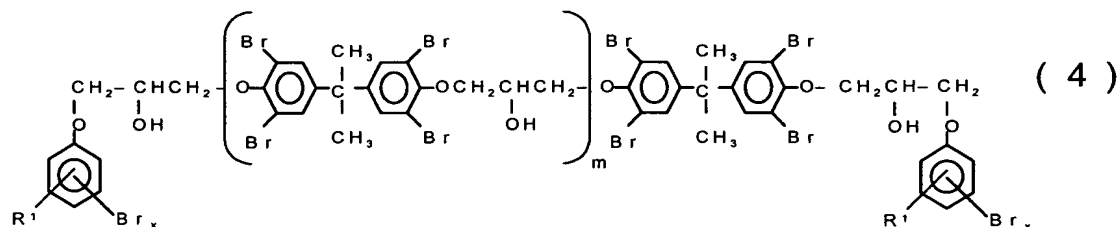


5 wherein m represents 0 to 29,



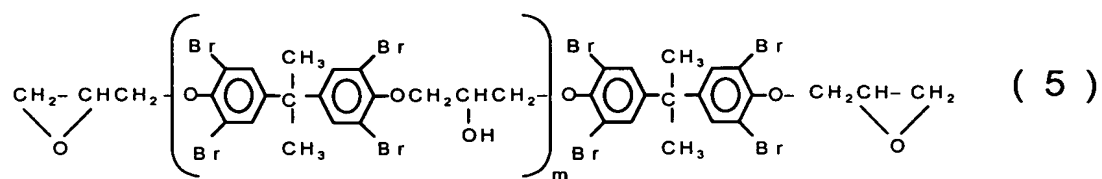
wherein R<sup>1</sup> represents a C<sub>1-10</sub> alkyl group, and n represents 0 to 100, and

10

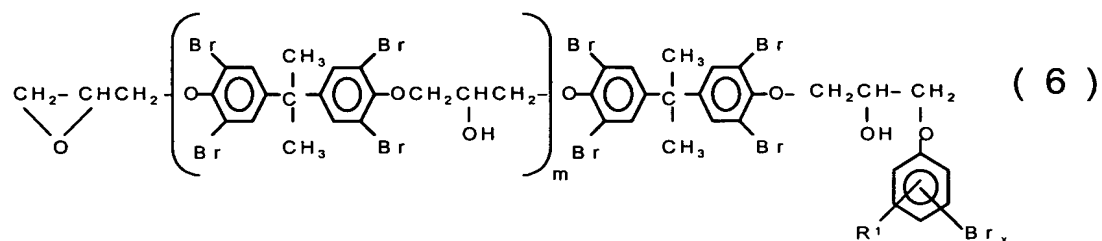


5. The flame retardant polyester fiber for artificial hair according to claim 1 or 2, wherein the component (B1) is at least one flame retardant selected from the group consisting of brominated epoxy flame retardants represented by the general formulas (5) to (7):

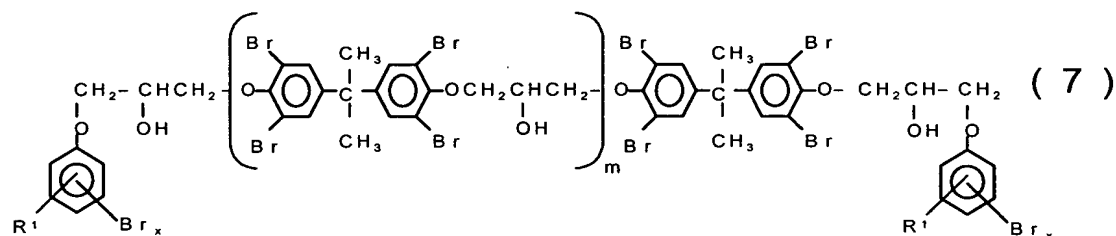
15



wherein m represents 30 to 150,



5 wherein R<sup>1</sup> represents a C<sub>1-10</sub> alkyl group, and n represents 30 to 100, and



wherein R<sup>2</sup> represents a C<sub>1-10</sub> alkyl group, p represents 30 to 100, and y represents 0 to 5.

6. The flame retardant polyester fiber for artificial hair according to any of claim 2, 3, and 5, wherein the projections on the fiber surface are amorphous.

7. The flame retardant polyester fiber for artificial hair according to any of claim 2, 3, 5, and 6, wherein the projections on the fiber surface have a major axis

length of 0.2 to 20  $\mu\text{m}$ , a minor axis length of 0.1 to 10  $\mu\text{m}$ , and a height of 0.1 to 2  $\mu\text{m}$  each.

8. The flame retardant polyester fiber for artificial hair according to any of claims 1 to 7, which is formed  
5 from a composition obtained by further mixing the components (A) and (B) with organic fine particles (C) and/or inorganic fine particles (D), and has minute projections on the fiber surface.

9. The flame retardant polyester fiber for artificial  
10 hair according to claim 8, wherein the component (C) is at least one member selected from the group consisting of a polyarylate, polyamide, fluororesin, silicone resin, crosslinked acrylic resin, and crosslinked polystyrene.

10. The flame retardant polyester fiber for artificial  
15 hair according to claim 8, wherein the component (D) is at least one member selected from the group consisting of calcium carbonate, silicon oxide, titanium oxide, aluminum oxide, zinc oxide, talc, kaolin, montmorillonite, bentonite, and mica.

20 11. The flame resistant polyester fiber for artificial hair according to any of claims 1 to 10, which has at least one modified cross-section selected from the group consisting of shapes of an ellipse, crossed circles, a cocoon, a potbelly, a dog bone, a ribbon, three to eight  
25 leaves, and a star.

12. The polyester fiber for artificial hair according to claim 11, wherein the fiber cross-section has a shape

with two or more circles or flat circles lapped or brought into contact with each other.

13. The polyester fiber for artificial hair according to claim 11, wherein the fiber cross-section has a shape of  
5 three to eight leaves, and the fiber is a modified cross-section fiber having a degree of modification represented by the expression (1) of 1.1 to 8.

(Expression 1)

Degree of modification = (Circumscribed circle  
10 diameter of monofilament cross-section)/(Inscribed circle diameter of monofilament cross-section)

14. The polyester fiber for artificial hair according to claim 11, wherein the fiber cross-section has a flatness ratio of 1.2 to 4.

15 15. The flame retardant polyester fiber for artificial hair according to claim 11, which is a mixture of a fiber having a round cross-section with a fiber having at least one modified cross-section selected from the group consisting of shapes of an ellipse, crossed circles, a  
20 cocoon, a potbelly, a dog bone, a ribbon, three to eight leaves, and a star, wherein the mixing ratio of the fiber having a round cross-section to the fiber having a modified cross-section is 8:2 to 1:9.

16. The flame retardant polyester fiber for artificial  
25 hair according to any of claims 1 to 15, further comprising (E) a hydrophilic fiber treating agent attached thereto.

17. The flame retardant polyester fiber for artificial hair according to claim 16, wherein the component (E) is at least one member selected from the group consisting of a polyether compound, fatty acid ester compound, organic amine, organic amide, organic fatty acid ester, organic amine salt, organic ammonium salt, organic pyridium salt, organic ammonium salt, organic pyridinium salt, organic picolinium salt, organic fatty acid salt, resinate, organic sulfonate, organic succinate, organic monosuccinate, organic carboxylate, organic sulfate, and organic phosphate.

18. The flame retardant polyester fiber for artificial hair according to claims 1, 2, and 16, wherein the component (E) is at least one member selected from the group consisting of polyoxyalkylene alkyl ether, polyoxyalkylene alkenyl ether, and polyoxyalkylene aryl ether, and their random copolymer polyethers, polyoxyalkylene alkylaryl ether, polyoxyalkylene alkyl ester, polyoxyalkylene alkenyl ester, and polyoxyalkylene alkylaryl ester.

19. The flame retardant polyester fiber for artificial hair according to claim 16, wherein the component (E) is at least one member selected from the group consisting of an ethylene oxide-propylene oxide random copolymer polyether (molecular weight MW: 15,000 to 50,000), polyethylene oxide (molecular weight: 100 to 1,000), and polypropylene oxide (molecular weight: 100 to 1,000).

20. The flame retardant polyester fiber for artificial hair according to any of claims 5 and 16 to 19, wherein the component (E) is attached to the fiber at a weight ratio of 0.01% to 1%.

5 21. The flame retardant polyester fiber according to any of claims 1 to 20, which is in the form of a non-crimped raw silk.

22. The flame retardant polyester fiber for artificial hair according to any of claims 1 to 21, which is spun  
10 dyed.

23. The flame retardant polyester fiber according to any of claims 1 to 22, which has a monofilament size of 30 to 80 dtex.